The Clean Up and Removal of Accumulated Waste Sites on Tribal Lands

THE CLEANUP PLAN

This section addresses activities that help ensure that a clean up is conducted in a cost-effective and environmentally sound manner. Gathering adequate information and formulating contingency plans prior to actually starting the project will decrease the number of unforeseen incidents which lead to lost time, cost overruns, accidents, or inadequate site clean up.

It is therefore strongly recommended that a comprehensive Cleanup Plan be developed for each waste site. The following sections and information should be included in your Cleanup Plan. Information on possible funding sources for solid waste cleanup activities may be found at the EPA web page http://www.epa.gov/epaoswer/non-hw/tribal/finance.htm or by calling the appropriate EPA regional solid waste Indian coordination office listed in Appendix VI of this document.

INTRODUCTION

Begin the introduction with a general description of the site location, especially in relation to the nearest populated area. A description of the regulatory status of the site should be included. A description and explanation of the jurisdiction for the site is necessary to establish legal responsibilities. Information upon which the plan is based should be briefly described in the event a reviewer wants to look at the data used to develop the Cleanup Plan.

ENVIRONMENTAL AND SITE DESCRIPTION

LOCATION

Provide specific directions to the site. Ensure that enough information is included so that someone unfamiliar with the area could find the site. Geologic survey maps often provide valuable site location information.

POPULATION

How many people live within two miles of the site? Are there are any immediate neighbors? A complete description of the local population, including their concerns and any issues unique to the site will help interested parties assess potential impacts on the community. For example, nuisance factors such as the smell of excavating rotting waste or disposal routes through neighborhoods should be identified here.

SITE USE

Estimate how many people currently use the site, and note others who may potentially use the site. Describe the current activity of the site, i.e., abandoned, active, heavy, light, etc.

SITE SIZE AND FEATURES

Specific information about the site should include the following:

(a) Area of the site, in yards (Multiply the length of the site by its width).

(b) Volume of waste in cubic yards (multiply area by the average depth of the waste). If the main body of waste is in a trench or other depression, estimate and include the volume of waste outside of the depression.

(c) Waste distribution at the site. Is it in a trench, scattered on the surface, mounded?

(d) Type of waste present, i.e., household, industrial, yard, dead animals, hazardous, white goods, automobiles, tires, batteries, barrels and drums, etc.

White goods - Note whether motors, transmissions, or compressors are present.

Automobiles - Note whether engines, transmissions, differentials, radiators, brake master cylinders, batteries, and air conditioners are present and whether these items still contain their fluids. Proper disposal of tires involves special procedures such as proper burning, chipping or shredding. Buried tires tend to float in landfills and may eventually work their way back to the surface. Improper disposal of tires also creates rodent, snake, and/or insect habitat. Since these animals are frequently disease vectors, there is the potential for public health concerns. See Appendix I, Section E - Sample Health and Safety Plan - Biological Hazards for more information.

Barrels and drums - If the original contents of barrels and drums cannot be determined, then these containers should be treated as if they contain hazardous materials. It may be best to conduct preliminary reconnaissance at distance with binoculars and assess potential hazardous conditions. Take particular note of any bulging containers. Bulging may indicate that contents are under pressure and should be handled accordingly.

Demolition Debris - Demolition debris may contain lead or asbestos. If lead or asbestos is suspected, contact the state or federal EPA for assistance with the special handling and reporting requirements for these wastes.

Construction and demolition waste can also be reclaimed, reused, and recycles. Look for facilities where these wastes may be reused if they don't require special handling.

Sewage sludge - Pathogens and heavy metals are often present and may pose disposal problems.

Compressed gas cylinders - These have the potential to become projectiles or explode when disturbed.

Known industrial wastes such as plastics, resins, pulp, rubber, stone, etc. may be hazardous.

(e) Describe the site location in relation to the surface and subsurface geology and natural features of the land. For example:

Is the site located in or adjacent to an arroyo, wash, canyon, intermittent stream or riverbed, pond, or lake? Is it or on a hillside or hilltop?

What is the distance from the site to these nearby features? Is the site in a seasonal flood zone?

What is the distance from the site to the highest seasonal high water mark?

Estimate the site surface gradient and determine site surface water runoff patterns. Does surface water drain from the site to any nearby watercourse? Plot these features on a map of the site.

Take pictures from each of the four sides of the site showing the surrounding topography.

Do any of the surrounding surface features show signs of wastes being wind blown or washed down from the disposal site?

Identify and take pictures of any stressed vegetation near or down gradient from the site, since this may be a sign of contamination. Identify and take pictures of any areas of stained soils (e.g., soils stained by used oil dumping, etc.).

Plot the location of any stressed vegetation and/or stained soil on a map of the site.

Describe the climatology of the area. What are the annual precipitation and evaporation rates? What are the yearly rainfall patterns. Does all of the rainfall occur during a few months of the year. Are there seasonal variations that could affect on-site work?

Give the depth to groundwater (the uppermost aquifer) at the disposal site. If known, describe the water quality of the underlying aquifer (e.g., is the aquifer suitable for drinking water purposes?)

Describe the soil geology beneath the site. This information may be obtained from well drilling records, from current United States Geological Survey (USGS) maps, or by drilling geophysical test borings if data is not readily available.

Based on the geophysical characteristics of the underlying soils, assess whether, and to what extent, the existing geology affords any protection to the aquifer.

(f) Note the presence of any industries, businesses, hospitals, and schools within close proximity of the site (e.g., one mile).

(g) Characterize and describe any potential hazards or problems relating to clean up/removal in the vicinity of the site. Look for such things as water lines, gas lines, power lines, and accesses to the site. Will temporary roads need to be constructed to allow access for necessary equipment? What is the destination of excavated wastes and will they need to be hauled out through, or near residential areas?

(h) Describe the distance to active wells and other water sources, such as lakes, ponds, rivers, streams, springs, and windmill tanks. Are these up gradient or down gradient from the site and what, if any, use is made of them. For example, is a stream the source of potable water for local residents?

(i) Describe the distance to sewage lagoons or septic systems and whether these systems are up gradient or down gradient from the site.

(j) Include any other general information relevant to the clean up of the site. If any of the elements described in (a) though (i) of this section are not present, this should be stated.

SITE HISTORY

Describe the history of the waste site. Information may often be obtained from a historical records search and should include the following:

(a) Is it known who may have contributed waste at the site?

(b) Are there any records or other documentation, i.e., pictures, aerial photographs, etc. about the site?

(c) Have wastes been burned at the site? Is it possible that explosives may be present?

(d) How has hazardous waste been disposed of in the surrounding area? If there is no local arrangement for disposal of hazardous waste, caution should be exercised in that hazardous wastes may be present at the site. See Appendix II for a description of some of the hazardous materials which may be encountered during a clean up and a listing of common household hazardous wastes.

REMEDIATION PLAN

Remediation is the process of clean up. As used in this document, a site which has undergone remediation has had wastes removed, but has not necessarily been returned to its original condition or prepared for specific future uses. Remediation readies the site for reclamation (see below).

The Remediation Plan describes clean up and removal methods in detail. It lists personnel and equipment requirements for each activity, as well as the cost of each phase.

Essential equipment includes the following:

- front loader;
- dozer;
- dump truck;
- sanitation facilities including hand washing facilities;
- first aid supplies;
- emergency eye wash facilities;

- personal safety equipment;
- decontamination supplies if site contains (or is suspected of containing) biological or hazardous waste.

Essential personnel include the following:

- site supervisor;
- qualified Health and Safety Officer;
- qualified, licensed equipment operators;
- workers/laborers (specify number).

Additional equipment and/or personnel may be required depending on the condition found at specific sites. For example, field air monitoring equipment for detection of flammable or toxic gases may be needed if buried waste is being excavated, because pockets of such gases might lead to worker injuries if they are not detected and mitigated.

Developing accurate cost estimates for clean up and removal may require an individual experienced in road construction and/or construction site development. The following is a list of remediation activities that should be addressed in the Remediation Plan.

(a) Identify facilities which could recycle or reuse certain wastes. Discarded items such as glass, metals, aluminum, white goods, plastics, and construction/demolition debris are easily and best recycled if a facility is within a reasonable distance.

(b) To avoid costly surprises, obtain written confirmation regarding the types of waste that are accepted at the intended disposal facility to avoid costly surprises. Non-hazardous solid waste not recycled or transported for reuse should go to a RCRA Subtitle D municipal solid waste facility.

(c) Estimate the volume and weight per cubic yard of materials to be removed. (Uncompacted municipal waste weighs about 160 lbs. per cubic yard.)

(d) Consider equipment operation and maintenance, and any necessary decontamination of equipment. Include storage for fuel, water, and other necessary supplies.

(e) Determine accessibility of the site. For example, if the site is in an arroyo or a wash, a temporary access road may need to be constructed.

(f) Consider what, if any, special mitigation/control measures might be required, i.e., dust, storm water, or odor control.

(g) Determine the time to load at the clean up site, unload at disposal site, and the distance to the disposal site.

(h) Determine disposal and recycling costs at the disposal site and recycling center where waste will be taken.

(i) Consider segregation and removal of special wastes such as automobile bodies, white goods, asbestos, and medical waste.

(j) Plan for testing of unknown materials for the presence of hazardous wastes. Include information on waste reduction and recycling in public materials and meetings.

(k) Plan for public information campaigns, public meetings, and notices.

(l) Plan for control of the site to limit public access.

(m) Consider health and safety training and equipment.

(n) Consider rodent trapping and disposal.

(o) Consider any on-site waste processing before final removal, such as shredding tires on-site to reduce volume.

(p) Determine workers wages and insurance. Be sure to include the Site Supervisor and Health and Safety Officer(s).

(q) Consider the need for temporary office space.

NOTE: Asbestos, lead, and other listed hazardous materials require special handling and reporting. It will be necessary to seek technical advice for disposal of these materials from the state or federal EPA.

Automobile bodies and white goods also require separate removal techniques. We recommend that a local metals salvager be contacted for assistance in removing these wastes. Since these are some of the items that can be recycled, skillful negotiation may result in diminished or eliminated removal costs.

The bulk of a clean up can be accomplished mechanically. Often, however, there is wind-blown litter and scattered waste that must be consolidated into the main body of waste. Unfortunately, most of this pick-up work must be done by hand. (See the Health and Safety Plan for specific requirements regarding personnel safety equipment and procedures. For safety, the number of workers at a site being cleaned up should be kept to the minimum number actually needed to accomplish given tasks in a day.)

RECLAMATION PLAN

Reclamation is the return of the area to its original condition or to as close to its original condition as is reasonable. Reclamation follows the remediation process and is a site specific task. It may involve obtaining fill for erosion control and/or topsoil for replanting. Grading may also be necessary. If contaminated soils will be left in place, reclamation may involve placement of some kind of cover. Reclamation, can require engineering to reestablish grade conditions, or it may be as simple as raking the site.

It is important to first determine the level of reclamation that will be undertaken (See Appendix III - Site Clean up). Consideration should be given to the proximity of nearby residences and the likely future uses of the site. It is also important to note any physical features of the area that may impact future use. For example, is the location prone to flooding?

Describe in detail the requirements for reclamation, including personnel, equipment, and costs. Since reclamation is such a site specific function, we recommend that assistance in the preparation

of the Reclamation Plan be sought from the regional BIA, Indian Health Service (IHS), state or federal EPA offices, or a local environmental engineering firm.

HEALTH AND SAFETY PLAN

The objective of a Health and Safety Plan (HSP) is to assure that all work conducted in the process of waste site clean up and removal is done as safe as possible with full consideration and awareness of potential risks. The goal of this plan is to conduct a clean up and removal project in with no injury or impairment to human health.

Describe the health and safety concerns related to the clean up of the site. In developing a HSP a site/project specific hazard assessment must be conducted to identify and evaluate all potential risks. For example, falling rock hazards at sites located in canyons, potential heat stress or stroke, animal hazards such as snakes, and the various potential human health hazards presented by the wastes. The HSP should include detailed information, as well as anticipated costs for each activity. Information should include, but not be limited to, potential hazards, including biological hazards, precautions to be taken, equipment, clothing, training of personnel, Health and Safety Officer duties, notices and signs, and activities to inform and protect the public. Maps showing the location and route to the nearest hospital should be on site at all times. A contingency plan that details procedures to be implemented in case of an emergency, such as an explosion, or release of hazardous materials, should be prepared and included in the first day briefing of workers.

PUBLIC PARTICIPATION PLAN

Describe the Public Participation Plan, including proposed public meetings, newspaper notices, posters, community education, etc. Include projected costs for each aspect of the Plan. Assistance on questions you might have in regards to planning for community involvement/public participation may be obtained by calling the toll free EPA Superfund/RCRA Community Involvement Helpline at 1-800-231-3075.

RECORD KEEPING

Records of all activities related to the closure of the site should be kept on a daily basis and the location of these records posted. These records should include information such as the construction/clean up activities that occur each day, weather conditions, amounts of wastes removed and where they were sent for disposal, and any unexpected wastes that were discovered. The name and telephone number of a contact person with access to cleanup records during clean up should be included. Note where the records will be kept after clean up is completed and the name and telephone number of the person in charge of the final records. It's recommended that records be maintained and available for seven years after completion of clean up. This section should also include any costs for generating and storing the daily records.

Certification that all remediation and reclamation measures have been completed should be placed in the permanent record. The certification should be signed by the tribal oversight authority and should include a description of the sampling, testing, and analysis that was carried out at the site.